

REMARKS

Claims 1, 2, 6, 11, 17, 23, 31, 40, 45, and 51 have been amended. Claims 35-39 have been canceled. Claims 57-58 have been added.

Specification/Figure Amendments

Applicant respectfully submits that amendments to the specification and to Figure 7C correct typographical errors. For example, changes made to paragraph [0039] and paragraph [0040] of the specification are supported by Figures 7B and 7C. Similarly, support for a change to Figure 7C is found in the specification at least at [0048], because the counter must increment until the counter value is greater than the time limit for the timer to expire. Applicant respectfully submits that a person of ordinary skill in the art would realize that an arrow should point from operation 719 to operation 717 to keep the counter incrementing until the counter value is greater than the time limit in Figure 7C (so that the timer can expire as discussed at least at [0048] of the specification), rather than from operation 719 to operation 715 as previously illustrated in Figure 7C. Therefore, Applicant respectfully requests that the Examiner enter the amendments to the specification and to Figure 7C.

Claim Rejections – 35 USC § 102 and 103

Claim 1, 3-26, 31-35, and 37-56 are rejected under 35 U.S.C. § 102(e) as being anticipated by Kidder (U.S. Patent 6,694,450). Applicant respectfully reserves the right to swear behind the Kidder reference at a later time. Claims 2,

27-30, and 36 rejected under 35 U.S.C. § 103(a) as being unpatentable over Kidder (U.S. 6,694,450) in view of Applicant's background. Applicant will address the Examiner's § 103(a) positions below, as all remaining independent claims 1, 6, 11, 17, 23, 31, 40, 45, and 51 of the § 102(e) rejected claim set have been amended to include a "heartbeat" (Claim 1, 6, 11, 17, 23, 31, 40, 45, 51). This limitation was already in independent claim 27.

No Suggestion to Combine

Applicant respectfully submits that there is no suggestion to combine Kidder with the heartbeat discussed in the Applicant's background. Kidder is a backup system, having "a distributed software redundancy design..to minimize network outages and other problems...by spreading software backup...across multiple elements" (Kidder Abstract). The Office Action (mailed on August 20, 2004) agrees with Applicant that Kidder does not discuss at least a heartbeat because the Office Action says that "KIDDER does not teach...heartbeat messages" (Office Action, pg. 12, lines 10-11). Kidder uses a "Master Control Driver (MCD) that learns the physical characteristics" (col. 11, lines 56-59) by taking "physical inventories to determine if hardware has been added or removed from a computer system" (col. 12, lines 65-66). Therefore, Kidder's MCD queries other processes to determine if they are alive and has no need for heartbeat messages.

As opposed to the use of an MCD as used in Kidder, the Applicant's background deals with "heartbeat messaging between processes" so that "death of one of the processes is detected by the other process when a heartbeat message has not been received within a given time period" (Specification, [0004]). The

Kidder reference has no need for heartbeat messages between processes monitored by the MCD because the MCD informs them of death of other processes. As such, there is no motivation to combine Kidder with the Applicant's background.

Noticeably, the Office Action offers no motivation to combine Kidder with the Applicant's background. Applicant requests that the Examiner clarify the position of obviousness based on "one skilled in the art" (Office Action, pg. 12, line 19) that it would have been obvious to one of ordinary skill in the art "to combine the teachings of KIDDLER with APA in order to determine the failure of a process" (July 9, 2004 Office Action, page 3). Applicant requests that the Examiner to provide an objective reason to combine the references per MPEP 2143.01. Furthermore, if the rejection is based on facts within the personal knowledge of the Examiner, the Applicant requests that the Examiner provide an affidavit stating specifically why the motivation to combine is common knowledge in the art per 37 CFR 1.104(d)(2).

Combination is Lacking

Nonetheless, even if the combination is proper, the combination would be a query based monitoring of processes by an MCD of the Kidder system with the heartbeat messages sent between the processes of the Applicant's background. Thus, both the MCD and the processes can detect death (the MCD by its query system, the processes due to lack of heartbeats from other processes).

Claims 1, 6, 40, and 23

Therefore, the combination does not teach or suggest a 1) "determining, by a process state manager, a process' state, the determining including determining expiration of a time period to receive a heartbeat message when the process dies"

(Claim 1); 2) "a process state manager...comprising...registering interest of a first process in a second process; determining the second process' state by processing a heartbeat from the second process " (Claim 6, 40); and 3) "process state manager....to communicate state changes between the first process and the second process based at least in part on a first heartbeat of the first process and a second heartbeat of the second process" (Claim 23).

Claims 11, 45, 17, and 51

Therefore, the combination does not teach or suggest a 4) "providing the first process a communication key; maintaining the communication key and the first process' state based on a heartbeat of the first process; and transmitting the communication key to a second process" (Claim 11, 45); and 5) "if the first process is determined alive by receipt of a heartbeat message prior to expiration of a timer, then transmitting the communication key for the first process to the second process" (Claim 17, 51).

Claim 27

Therefore, the combination does not teach or suggest a 6) "a first processor to host a process state manager, the process state manager to maintain a communication key and a state for a process; and a second processor...to host the process, the process to periodically transmit heartbeat messages to the process state manager on the first processor" (Claim 27).

Claim 31

Therefore, the combination does not teach or suggest a 7) "if the second communication key is provided because a heartbeat message of the process has been received by the process state manager before a timer expires, then communicating with the process with the second communication key; if the second communication key is not

provided, then requesting notification from the process state manager when the second communication key is available based on a registration of the process with the process state manager." (Claim 31).

Claims 2-5, 7-10, 12-16, 18-22, 24-26, 28-30, 32-34, 41-44, 46-50, 52-56

Applicant respectfully submits that dependent claims 2-5, 7-10, 12-16, 18-22, 24-26, 28-30, 32-34, 41-44, 46-50, 52-56 are allowable for at least the reason that they depend on an independent allowable claim.

New Claims

Applicant respectfully requests that the Examiner consider new claims 57-58. Applicant submits that new claims 57-58 add no new matter, and are allowable at least because claim 57, from which claim 58 depends, requires at least "a plurality of network processes, including a BGP process, each of the plurality of network processes to, generate a registration request message upon birth, receive communication keys for direct communication between the plurality of network processes...generate periodic heartbeat messages while active; and a configuration manager to... detect each of, birth of any of the plurality of network processes based on the registration request messages, death of any of the plurality of network processes based on an absence of receipt of their heartbeat messages, and restart of any of the plurality of network processes that previously registered based on a completion signal from that network process indicating that it has restarted" (Claim 57). Applicant respectfully submits that claim 58 is allowable at least because it depends on an allowable independent claim.

Invitation for a telephone interview

The Examiner is invited to call the undersigned at 408-720-8300 if there remains any issue with allowance of this case.


Charge our Deposit Account

Please charge any shortages and credit any overages to Deposit Account No.

Respectfully submitted,

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Dated: 12/20/04



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AMENDMENTS TO THE DRAWINGS:

The attached drawing sheet of Figure 7C replaces the original Figure 7C drawing sheet. An arrow on the original Figure 7C from operation 719 to operation 715 has been corrected to point from operation 719 to operation 717 in the attached drawing sheet. Support for this change is found in the specification at least at [0048], because the counter must increment until the counter value is greater than the time limit for the timer to expire. Applicant respectfully submits that a person of ordinary skill in the art would realize that the arrow should point from operation 719 to operation 717 to keep the counter incrementing until the counter value is greater than the time limit, so that the timer can expire as discussed at least at [0048].

Attachment: Replacement Sheet